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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,785	02/05/2001	Youbun Ito	07553.0018	8283

7590 02/05/2003

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EXAMINER

GOUDREAU, GEORGE A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 02/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09-709785

Applicant(s)

Ito et al.

Examiner

George Goudreau

Group Art Unit

1763

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 11-02-06, paper # 7
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-9 is/are pending in the application.
- Of the above claim(s) is/are withdrawn from consideration.
- ☒ Claim(s) 2-3, 9 is/are allowed.
- ☒ Claim(s) 1, 4-8 is/are rejected.
- ☐ Claim(s) is/are objected to.
- ☐ Claim(s) are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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15. This action will not be made final due to the new grounds of rejection.
16. Claims 2-3, and 9 are allowed.
17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

19. Claims 1, and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiba et. al. (5,429,710).

Akiba et. al. disclose a process for etching a ILD layer such as SiO₂ on top of an Al wiring layer which is covered with an antireflective film such as TiON. They employ a patterned photo resist etch mask, and a plasma which is comprised of (C₄F₈-CH₂F₂) to conduct their etching process. This is discussed specifically in columns 5-6, 8-9; and discussed in general in

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columns 1-10. This is shown in figures 1-4. Akiba et. al. fail, however, to specifically disclose the following aspects of applicant's claimed invention:

- the specific usage of SiNx as an antireflective film on the Al wiring layer; and
- the specific etching process parameters which are claimed by the applicant

It would have been obvious to one skilled in the art to employ SiNx as the antireflective film on the surface of the Al wiring layer formed in the process taught above based upon the following. The usage of SiNx to form an antireflective film on a wiring layer is conventional or at least well known in the semiconductor processing arts. (The examiner takes official notice in this regard.) Further, this would simply involve the usage of an alternative, and at least equivalent means for forming an antireflective film on the Al wiring layer in the process taught above to the specific means which are taught above.

It would have been prima facie obvious to employ any of a variety of different etching process parameters in the etching process taught above including those which are specifically claimed by the applicant. These are all well known variables in the plasma etching art which are known to effect both the rate and quality of the plasma etching process. Further, the selection of particular values for these variables would not necessitate any undue experimentation which would be indicative of a showing of unexpected results.

Alternatively, it would have been obvious to one skilled in the art to employ the specific etching process parameters which are claimed by the applicant based upon In re Aller as cited below.

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"Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F. 2d 454, 105 USPQ 233, 235 (CCPA).

Further, all of the specific process parameters which are claimed by the applicant are results effective variables whose values are known to effect both the rate, and the quality of the plasma etching process.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner George A. Goudreau whose telephone number is (703) -308-1915. The examiner can normally be reached on Monday through Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Examiner Gregory Mills, can be reached on (703) -308-1633. The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) -306-3186.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) -308-0661.


George A. Goudreau/gag

Primary Examiner

AU 1763